

REMARKS

Claims 1-10, 19, 21-22, 24-25, 27-31, 34-35, 37-41, and 43-63 are pending in the application. Claims 1, 46, and 55 are the independent claims. Claims 44-63 have been added by this Amendment.

In the communication mailed March 25, 2008, the Examiner rejected all currently pending claims based on obviousness type double patenting based on Applicant's previous patents in view of Herbst et al., U.S. Patent No. 6,021,347. All claims were further rejected under 35 U.S.C. § 103 as obvious over Herbst et al. alone or in view of Slovak, U.S. Patent No. 5,058,605. Applicants believe that the Examiner's rejections do not address all of the claimed elements of dependant claims 2-43 as then pending. For instance, it was not explained why the Examiner believes certain elements, such as an electrode array coupled to a catheter and configured to steer a therapeutic agent (per the former version of dependent claim 43), to be obvious in view of the prior art. Nevertheless, independent claim 1 has been amended to further distinguish the prior art, and additional independent and dependent claims have been added that are distinguishable over the known prior art. For these reasons, it is believed that all pending claims overcome the Examiner's rejections.

Independent claim 1 as currently written requires a power source, circuitry coupled to said power source, a catheter implanted into the patient, and an array of electrodes coupled to the circuitry and configured to steer a therapeutic agent away from the end of the catheter along a predetermined path. This invention allows a pharmaceutical compound to be steered through the abnormal tissue to be treated and to more effectively permeate the tissue to be treated, or alternatively for the pharmaceutical compound to be selectively delivered to one of a plurality of specific target locations, without adjusting the positioning of the catheter or providing multiple catheters to a treatment zone. Such an improvement in drug delivery is not suggested by the Herbst patent or obvious in view of thereof. Advantageously, the electrodes used to steer the pharmaceutical compound may also be used to effect direct current ablation of target tissue.

Claims dependent from claim 1 have additional limitations that distinguish the claimed inventions over the Herbst patent. For instance, dependent claim 27 further requires that the plurality of electrodes used to steer the therapeutic agent are in the form of an arc around the distal end of the catheter. Advantageously, this configuration allows a therapeutic agent exiting the catheter to be dispersed by traveling in an arc emanating from the distal end of the catheter or alternatively allows for selectively directing the therapeutic agent along a path parallel with or transverse to the axis of the distal end of the catheter and ending at one of the plurality of electrodes. Dependent claim 34 requires that the power source used to generate electrical therapy is implanted within the patient's body. Dependent claim 37 requires an electrical port to be implanted in the patient's body in order to allow an external power source to be coupled to the device described in claim 1, allowing the external power source to be easily connected and disconnected to electrodes implanted within the patient's body. None of these features are described or suggested by the cited prior art.

Newly added claim 46 describes a porous membrane spanning across the end of a catheter in order to allow selective passage of therapeutic compounds out of the catheter. Electrodes positioned primarily outside of the catheter may be used to provide electrical therapy to a treatment site. Porous extensions of each electrode further pass into the lumen of the catheter and then into alignment with the porous membrane extending across the lumen. These porous extensions of the electrodes act as electrically charged gates and allow passage of therapeutic agent through the porous membrane to be controlled by electrical current, allowing a user to increase or decrease the flow of therapeutic compound from the catheter. Such a catheter configuration is not hinted at by the Herbst patent. Dependent claims 47-54 further distinguish the Herbst reference.

Newly added claim 55 describes a medical device including a power source, circuitry, a plurality of electrodes and a catheter having a plurality of diverging or forked ends, each diverging end coupled to at least one electrode. Such a configuration is not shown or made obvious by the Herbst patent. Dependent claims 56-63 further distinguish the Herbst patent.

Favorable action on the present application in view of the foregoing amendments is respectfully requested. Applicants submit that the amendments to the claims overcome the rejections based on non-statutory double patenting and 35 USC §103 in the most recent Office Action.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone Thomas F. Lebens at (805) 781-2865 so that such issues may be resolved as expeditiously as possible.

Respectfully submitted,
FITCH, EVEN, TABIN & FLANNERY

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